

# PATENT SPECIFICATION

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## (54) IMPROVEMENTS IN OR RELATING TO FERRITE-CORED TRANSFORMERS

(71) We, THE MARCONI COMPANY LIMITED, a British Company, of Marconi House, New Street, Chelmsford, Essex. CM1 1PL, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to ferrite transformers and more particularly to high-power high-frequency ferrite-cored transformers.

With ferrite-cored transformers as at present known there is a maximum frequency above which one cannot go at any given power level, and a maximum power level above which one cannot go at any given frequency. The curve connecting these two is not known with precision, as few ferrite-cored transformers have been made for use at high power levels.

The present invention seeks to provide an improved ferrite-cored transformer in which this difficulty is reduced.

According to this invention a transformer is provided in at least two parallel portions each said portion comprises a plurality of conductors which are straight over a substantial part of their length and means for selectively connecting the conductors of each portion together at their ends to form sets of conductors within each portion; means at one or both ends of the portions for connecting a set of conductors in one portion to a set of conductors in another portion so as to provide at least one turn of a plurality of conductors, and at least one discrete ferrite core part encircling the straight part of each said portion.

The invention is illustrated in and further described with reference to the accompanying drawings in which,

Figures 1 and 2 show two views of a transformer in accordance with this invention.

[Price 33p]

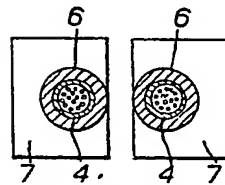
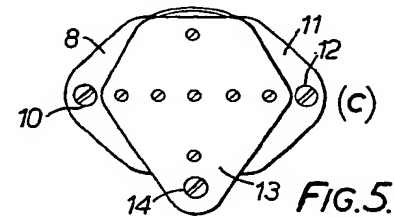
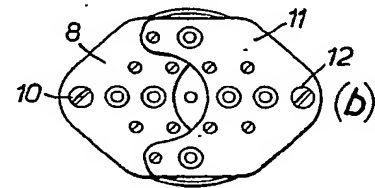
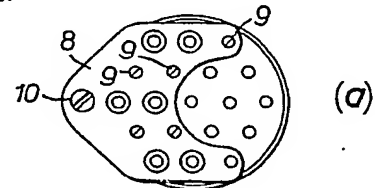
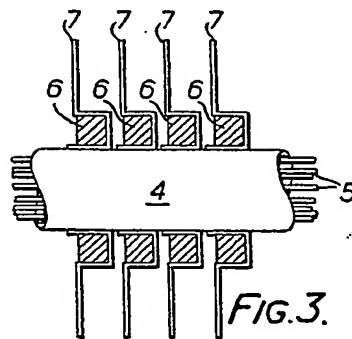
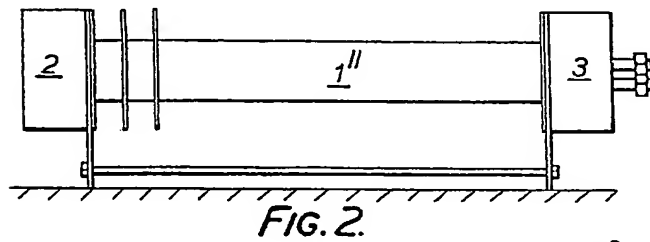
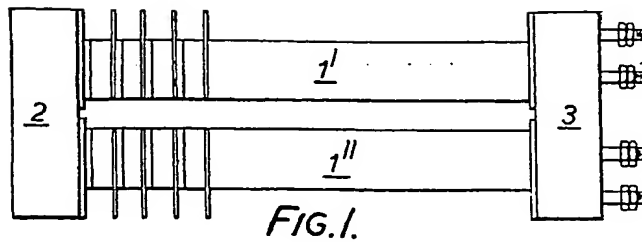
Figures 3 to 5 illustrate the features of the transformer of Figures 1 and 2 in greater detail.

Referring to Figures 1 and 2 these show the general arrangement of the transformer, comprising two sub-assemblies 1', 1" each consisting of a plurality of conductors disposed within a number of ferrite core parts, and in this case provided with cooling fins. A more detailed description of these sub-assemblies is given later in conjunction with the description of Figure 3.

The two sub-assemblies 1', 1", are arranged between two interconnecting and mounting means 2, 3. Each of these means contains provision for cross-connecting selected ones of the conductors in the two sub-assemblies so that the conductors in effect become continuous windings within the transformer. Both the means 2, 3 also optionally provide for mechanical mounting of the transformer. As the mounting details do not form a part of the present invention, no further description will be given of this feature. The means additionally provides terminating means for the transformer windings formed by the interconnections.

Referring to Figure 3, this provides a more detailed view of a portion of one of the sub-assemblies 1', 1" of Figures 1 and 2. This figure shows a section of tube 4 containing a plurality of conductors 5. Around the outside of the tube 4 is disposed a plurality of ferrite core parts 6, which may take any convenient shape but which are in this case assumed to be annular. In this case there is additionally provided as an optional feature a plurality of cooling fins 7, which again may be of any convenient shape.

It will be noted that not only are the two sub-assemblies disposed with their longitudinal axes in parallel, but even more importantly, the conductors in each sub-assembly are also disposed in parallel, and,



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